REMARKS

In the Official Action, Claims 1-7, 9-11 and 14-17 were rejected under 35 U.S.C. 103 as being unpatentable over Ellis (WO 01/98575) in view of Irwin (US 5,612,113) and Higgins (US 2002/0142126), and claim 24 was rejected under 35 U.S.C. 103 as being unpatentable over Ellis in view of Irwin for reasons set forth in the Office Action.

Claims 12 and 13 were said to have allowable subject matter, and claims 18-22 have been allowed.

With respect to the rejections under 35 U.S.C. 103, the claims are amended to distinguish over the teachings of the cited art, and the following argument is presented to distinguish the claimed subject matter from the teachings of the cited art, thereby to overcome the rejections, and to show the presence of allowable subject matter in the rejected claims.

Ellis is somewhat unclear in certain aspects of his description. In the Abstract, Ellis discloses a microporous liquid impermeable vapor permeable film in the construction of a carpet. On pages 13 and 17 examples are given for the use of the carpet in the situation where water has accumulated on a floor. On page 6, at line 10, the text teaches that the carpet construction of Ellis provides a dramatic improvement in cleanability. In the usual usage of language, that statement is understood to include the use of some sort of cleaning fluid or soap, both of which are surfactants, mixed with water. As is well known, the surface tension of water (72 dynes per centimeter) is much higher than the surface tension of water having a surfactant dissolved therein (approximately 27.4 dynes per centimeter). As a result, a microporous membrane intended for use with pure water, to be impervious to the transport of the liquid water through the membrane while providing a measure of breathability for water vapor, would have a much larger pore size (larger diameter) than a microporous membrane intended for use with the surfactants. If one attempted to use a microporous membrane, which is constructed for pure water, with the surfactants, it would be observed that the mixture of

water with surfactant would readily flow through the pores. The theoretical explanation of this phenomenon is explained in the present specification in the text and mathematical expressions linking pages 6-7. The lowering of the surface tension of a challenge liquid is associated with the lowering of the "Bubble Point", namely, the pressure needed to overcome the liquid hold-out ability of a barrier or membrane at an air-liquid interface. On the other hand, if one attempted to use a microporous membrane with the smaller pores, which membrane is constructed for the water-surfactant mixture, with the pure water, it would be observed that the membrane is impervious to the pure water but that the breathability is significantly reduced, possibly to an unacceptable level, because of the smaller pores.

Accordingly, the structure of Ellis is, in a sense, inoperative for its intended purpose of being operative with pure water while, at the same time, providing the feature of "cleanability". For this reason, it is suggested that the examiner might want to search for a different reference that is free of the difficulties mentioned above related to the theory of operation of the Ellis carpet.

To insure clarity of the presently claimed subject matter, thereby to avoid the confusion inherent in the Ellis teaching, present claim 17 is amended to recite a specific measure of the characteristics of the breathable membrane for resistance to liquid penetration and for breathability as set forth in the present specification in the paragraph linking pages 8-9. In view of the contradictory messages provided by the Ellis disclosure, it is urged that the amended claim 17 provides subject matter that cannot be viewed as being understood from the Ellis disclosure, whether the teachings of Ellis be considered alone or in combination with the teachings of Irwin and Higgins.

With respect to Irwin, the description of his carpet includes a film of liquid impervious thermoplastic material (Abstract) which is shown in different locations relative to other layers of the laminated carpet, in different embodiments of the carpet. Based on this teaching, the examiner concludes that it would be obvious to reposition, in Ellis, the microporous

membrane from the bottom of the Ellis laminated carpet structure, to a location between primary and backing layers of the Ellis carpet. This conclusion of the examiner may be accurate in the case of a non-breathable, liquid impermeable film, as disclosed by Irwin, but is questionable in the case of a breathable, liquid-impermeable film because the location of the breathable film in the carpet effects the amount of breathability. In the normal usage of a carpet located on a floor, the water vapor escapes upwardly, away from a possible accumulation of water beneath the membrane (which water may have wetted the secondary backing layer), to pass through whatever layers are on top of the breathable film. A relatively large number of layers of material of the carpet, through which the vapor must pass, impedes the passage of the vapor, and thereby reduces the breathability of the overall structure of film plus carpet layers. Therefore, one cannot simply relocate the breathable microporous film from one location to another in the Ellis laminate. For this reason, it is believed that there would be no motivation to combine the two references for the rejection under 35 U.S.C. 103.

With respect to Higgins, the description of his carpet includes a scrim 158 made of glass fibers held together by an acrylic binder (paragraph [0176] and middle of [0178]). The scrim 158 is shown laminated between two adhesive layers 160 of a carpet in Fig. 3B. The adhesive layers 160 locate the scrim 158 between a layer 178 of foam and a layer 124 of acrylic precoat. The scrim is referred to in the Abstract as a glass layer of stabilizing material. It appears that Higgins does not disclose the construction of a breathable carpet. However, the examiner has employed the Higgins teaching of scrim in a carpet for stabilization of the carpet to show that the Higgins scrim may be employed also in the Ellis carpet for stabilization. It is urged that the Higgins scrim would defeat the breathability of the Ellis carpet, and that therefore there would be no motivation to combine Higgins with Ellis and Irwin. This may be understood from the following analysis.

In the present specification, in the top several lines of page 5, there is a description of the role of the scrim, in conjunction with adjacent backing layers of the carpet, in the construction of the carpet. On page 5 at lines 24-26, the specification teaches that the primary

and the secondary backing layers serve to protect the breathable membrane. On page 5 at lines 9-10, the specification states that a description of the scrim is provided in an earlier patent of the present inventor, Martz, in US Patent 5,656,167. In this Martz patent (col. 8 at line 47 to col. 9 at line 36), there is description of how the scrim filaments are connected to each other and also to the film that is being stabilized by the scrim. A feature of the construction is the relatively wide spacing between the filaments which form the boundaries of a cell of the scrim. The distance, on centers of the filaments, is at least an order of magnitude (a factor of ten) greater than a diameter of a filament to insure that the grid of cells does not impede the breathability of the film. This spacing is large enough to permit application of an adhesive to the filaments without occluding any more than a negligible portion of the free exposed area of the film, thereby to retain breathability of the film. For the purposes of understanding the present invention, it is important to appreciate that the Martz patent considered a construction of scrim on film, wherein the sizes of individual cells of the grid of scrim were chosen to prevent occlusion of the breathable film, and to preserve the breathability of the film.

This teaching of the Martz patent alerts us to any construction of a laminated structure employing a breathable film with a stabilizing grid of scrim, and teaches us the need to be concerned that the sizes of the cells of the scrim grid must be large enough, relative to the thickness of a scrim filament, to avoid excessive block of a breathable film, and thereby preserve the breathability of the film.

With reference to the above-cited passages of Higgins, there is no indication as to the spacings of the glass filaments of his scrim nor of the thicknesses of his filaments. He does not teach use of a breathable adhesive, and there is no indication of a use of an adhesive encasing the filaments wherein the adhesive is made of a material that is soft and pliable to avoid a scratching (abrasion) of the film by people walking on the carpet. Indeed, this is not a concern of Higgins because the scrim is secured, as noted above, between a layer of plastic foam and an acrylic layer of precoat.

The abrasion associated with pounding was described in the previous response, wherein the following was noted. The fabric of a carpet that may abrade the breathable membrane, as by a layer of jute fibers, or now a more commonly used fabric such as polypropylene having spun or fibrillated fibers encased in latex. The durometer hardness of the latex encasing the fibers is much harder than the relatively soft material of the breathable membrane. Thus, the presence of a layer of jute fibers (or polypropylene fibers encased in the latex) in contact with the fragile breathable membrane, which membrane is impervious to liquid, presents a situation wherein a relatively hard material (the jute or polypropylene in latex) contacts a relatively soft material (polyethylene or similar thin film of plastic breathable material). A relative movement between the two materials provides a rubbing and/or a pounding of the relatively hard material against the relatively soft material, which rubbing or abrasion eventually causes a failure (such as a tear) in the breathable material wherein a liquid can pass through the breathable membrane. This failure mechanism is readily demonstrated with a standard form of carpet test, know as a Dynamic Crush Test or also know as 10,000 Impact Test, wherein a hammer of a dynamic crush apparatus impacts repetitively upon a region in a sample of a carpet.

Claim 1 is amended to state that the stabilizing layer is a breathable stabilizing layer. This is understood from the teaching of the present specification on page 4 at lines 4-10. In view of the inclusion of the limitation "breathable", there would be no motivation to combine the teachings of Higgins with the teachings of Ellis and Irwin to support the rejection under 35 U.S.C. 103. Other amendments are made to various ones of the claims for clarity. Claim 24 is presented for reconsideration without amendment if view of the foregoing argument showing that there would be no motivation to combine Ellis with Irwin.

In view of the foregoing amendment and argument, it is urged that the foregoing rejections have been overcome so as to secure allowance of the rejected claims.

The foregoing amendment is believed to meet all the points raised by the Examiner so

as to place the claims in condition for allowance. If any of the matters raised in the Action or any further matters have not been adequately resolved by this amendment, a telephone interview between Applicant's representative and the Examiner is requested in order to resolve any such outstanding matters.

It is believed that all the claims are now in condition for allowance in that they patently distinguish over the art. Accordingly, a favorable response indicating such condition is earnestly solicited.

Respectfully submitted,

David M. Warren

David M. Warren
Reg. No. 25520
Attorney for Applicant
655 Oakland Ave.
Cedarhurst, NY 11516

Tel. (516) 295-2054
Date: February 7, 2008